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KINDERGARTEN PERCEPTION TRAINING--ITS EFFECT ON FIRST-GRADE READING.

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FIFTEEN RESEARCH STUDIES IN CHILD DEVELOPMENT ARE SURVEYED. PARTICULAR EMPHASIS IS GIVEN TO FELDMAN WHO RECOMMENDS A "CODE-FIRST" PROGRAM FOR BEGINNING READING. THE TERM "CODE" REFERS TO THE LETTER SYMBOLS REPRESENTING THE CHARACTERISTIC SPEECH SOUNDS OF ENGLISH. SOME OF THE PROBLEMS IN PERCEPTION AND THE IMPLICATIONS FOR KINDERGARTEN PERCEPTION TRAINING PROGRAMS ARE CONSIDERED ON THE BASIS OF THIS "CODE-FIRST" APPROACH. SPECIFIC SUGGESTIONS FOR ACTIVITIES WHICH WOULD DEVELOP A CHILD'S AUDITORY PERCEPTION ARE DESCRIBED. THE ROLE OF LANGUAGE IN THE DEVELOPMENT OF PERCEPTUAL ACTIVITY IS ALSO DISCUSSED, AND STUDIES OF HOW THE CHILD ACQUIRES SYNTAX ARE REVIEWED. (RH)

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KINDERGARTEN PERCEPTION TRAINING

ITS EFFECT ON FIRST-GRADE READING

SEQUENCE 1 WORD RECOGNITION

The question of kindergarten perception training is both timely and complex. Many educators are reviewing the matter and are stimulated by the implications of the recommendations of research on beginning reading programs. In addition, the complexity of the perceptual process itself and of the factors which influence it, add additional dimensions to an investigation of the question. It is necessary, therefore, to delimit the subject and make some assumptions.

It is assumed in this paper that selected activities in perception training could have a beneficial effect on first-grade reading, and that some children are ready for direction. The activities could be classified with Sheldon's term (11) "pre-book learning and oral language development" but nevertheless they are activities which attempt to accelerate the development of skills associated directly with known perception problems of first-grade reading programs. Without minimizing the importance of physical, social, emotional and mental maturity factors, it is also assumed that these factors will permit the students to progress on a perception training program with some measure of success. The difficult questions of how best to identify the students who are ready for perception training and to decide whether they should participate are not considered here.

Specific approaches and programs which include computerized typewriters, visual perception kits, and sets of flash cards are well known and will not be discussed. Instead, an attempt will be made to cite research studies in child development that will serve as the bases for suggestions of possible approaches for perception training. Of special interest to me are some of the recommendations made by Chall and Feldmann(2) in their survey of first-grade reading programs and I propose to link my remarks to that study.

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The Perceptual Process in Reading. Perception is a form of behavior that results in an organization of incoming sensory data (12). Visual perception according to Vernon (13) is a four part process in which the child reading the word attends to it until he can name it or describe it in other words. First, he is aware of the visual symbols standing out from the background of the page of the book and then he sees essential similarities for the general classification of the word. Thirdly, he classifies the visual symbols of the word within the general class and last of all he identifies the word, usually by naming it. Visual perception is a learned process which encompasses considerations of acuity, discrimination, and memory. Auditory perception may be viewed as a parallel process to visual perception taking similar account of acuity, discrimination, and memory. Both auditory and visual perception receive attention from first-grade teachers as the important auditory-visual associations are made between sound and letter symbols. In this paper my remarks are confined to some of the aspects of auditory perception and to the impact of oral language development on perceptual development.

The Establishment of the Code. As children grow and develop through the pre-school years they learn to discriminate most of the characteristic speech sounds of English. Each sound has a number of measurable attributes such as frequency and intensity. Sounds are most frequently conducted to the child's ear by waves airborne and are usually heard on a time sequence. That is, we hear one sound after another. A sequence of sounds which make up a word is bounded by the juncture or pause before and after the word.

Moreover, during the same pre-school years the child is becoming acquainted also with objects in his visual field, the majority of which possess three dimensions, length, width, and depth. These objects are viewed primarily in space although time enters in as successive parts of an object may have to be viewed before the entire object is seen. Spaces often show the boundaries of objects just as pauses or silences separate sounds.

Because sounds have little permanency man learned to capture them by devising letter symbols to represent sounds. These visual symbols are usually two dimensional on paper but have the advantage of being a more permanent record of a communication. In this way a code was formed comprised of a set of letter symbols representing the characteristic speech sounds of English. In English this code is very complex as there are few instances in which one printed symbol stands for just one speech sound.

By tradition children are usually confronted with this code in the first-grade reading program although in many programs the first and main emphasis is on meaning not on the learning of the code. That is, in the initial lessons words which are in the children's oral vocabulary are learned in printed symbol form as sight words without too much concern for the learning of the code itself. Chall and Feldmann(2) recommend that attention focus first on the code. In the beginning of the first grade reading program (and only in the beginning) the teachers would use the words in the children's oral vocabulary and teach them which letter symbols stand for the sounds in the words. They recommend in effect that the

children be first taught the code. It should be remembered that meaning is not igonored. They recommend the use of words the children use and know in their speech. Once the code is mastered no further emphasis is given to it.

This study is a significant one and it should have an impact upon the thinking of educators interested in kindergarten programs. With the code-first approach in mind will you consider with me some of the problems in perception and the possible implications for kindergarten perception training programs?

The Distinguishing of Individual Sounds. To read, the child must be able to hear and distinguish the separate sounds in words. But hearing is a developmental process made up of a series of factors which exhibit individual rates of development in children (15). As a result, when the child comes to school there are some sounds of English which he probably has not yet mastered. He cannot hear them and he cannot produce them correctly in their accepted positions in words. Unless the maturing process can be hastened without putting him under undue stress, there will be parts of the code in his beginning reading programs which the child will not be able to conquer. In a word, there will be some sounds which, not being able to discriminate yet, he cannot associate with an accepted printed symbol. Which sounds are these? How might a kindergarten perception program help to correct this situation?

Wepman (14) sets forth the sounds of English which he believes are not mastered in speech until aged six years and older. Newby (7) reports that the ear is not equally sensitive to all frequencies with the result that greater intensities are required for the higher and lower ends of the frequence scale. The speech sounds whose distinguishing characteristics are in the higher frequencies are the voiceless consonants (p, t, k, s, f, sh, ch, and the voiceless th). A comparison of the Wepman and Newby lists shows that a number of sounds appear in both. That is, a number of the sounds the child may not have mastered until six years and older could be voiceless consonants. As Olmsted (8) predicted in his theory of the child's learning of phonology, when a sound is voiced (that is, the vocal cords vibrate during the production of the sound) that sound is easier to discriminate.

These voiceless consonant sounds, therefore, are among those for which brief regular training sessions could be given during the kindergarten year. As there is less urgency in training sessions the child is not under the same pressure to discriminate the sound so he can attach it to a letter symbol counterpart. He should have no reason, therefore, to withdraw from the sessions as may happen in first grade speech and reading sessions.

One teaching approach could be that in which minimal pairs are presented to the child for his discriminatory response of "same" or "different." A minimal pair is two words which differ only by one sound as in thin-bin. One word would contain the sound not yet mastered with the other word of the pair composed of known sounds.

It should be noted too, that kindergarten teachers' voices tend to rise in pitch when they are tired making it harder for children to hear some of these voiceless consonants. Perhaps, too, more consideration could be given to the normal pitch level of the kindergarten teacher's voice in teacher edcuation programs so teachers would be aware of attendant sound discrimination problems of the children listening to them speak.

Dykstra (3) reported that in his study of grade one children the boys apparently learned auditory discrimination skills less readily than girls. It has been reasoned that boys spend more time outside the home and do not have the same opportunities to hear their mother's speech patterns which are usually clearer than the less well defined speech patterns of their young friends. In pre-reading activities in kindergarten, then, training periods in auditory discrimination could be held separately for the boys who need more help.

The Distinguishing of a Succession of Sounds in Known Words. An additional problem in perception is the inability of the child to distinguish the separate sounds within a word when he hears them in sequence. The problem is one of the discrimination of sounds in succession. This ability is not difficult for the literate adult as it has become a well automatized mental action. For the child, however, it is hard to form the mental action of hearing and distinguishing sounds as they are heard in succession in words. Such is the opinion of Elkonin (4) who explored this problem with pre-school children in Russia, children aged 6-7. He believed that children who are struggling with this problem should not be expected to begin their work on the adult level. That is, they should not begin to analyze a word into its sound components upon the presentation of a speech cue from the teacher. The task should be accomplished in easier stages. These easier stages follow.

In tasks involving the forming of a mental action about objects a child is free to touch, see, smell, taste and listen to them. He learns about the object on this concrete level before proceeding to the internalizing of the actions at which stage he can think about the object without having to have sensory cues. He has speech to help him think about and talk about objects in their absence. The process of internalizing actions proceeds gradually from the concrete to the abstract.

However, when the object in question are sounds themselves, their transitory nature makes the task of learning to perform mental actions involving sounds a much more difficult task. He cannot see sounds, touch, smell, or taste them. He can only listen to them.

Elkonin suggested that the word in which the child is attempting to hear and distinguish the sounds be depicted in a drawing, as a means of materializing the sounds which pass away so quickly. Underneath the drawing of the object the investigator drew a box made up of horizontal squares, one square for each sound in the word pictured. The word depicted in the drawing was spoken to the child and the desired response from the child was deomonstrated to him. As the investigator named each sound ~~he~~

he placed a counter in each square under the picture. He then said the word again. This means that the child was always working with a word known to him in his speech and illustrated for him. In addition, he heard the word as a whole and then after the analysis he heard the word again as a whole.

By continued demonstration and explanation the task of naming the sounds in order in a word was made clear to the child. Galperin (5) upon whose study Elkonin builds his investigation, believed that this first step was of special importance. He suggested that the child would not himself perform any action for a time but he could be encouraged to take an active part in the teacher's demonstration by prompting her next operation or by naming its result. By means of language the child exhibits his control over the action. Learning to discriminate the sounds within a word would mean that the child would be encouraged to volunteer the next sound that the teacher was about to say either saying it with the teacher or for the teacher.

Gradually the child would become involved more completely in the process. When he heard the word he would attempt to name the sounds within the word laying down a plastic counter in each horizontal square for each sound named. The visual presence of the picture and the manipulation of the counters would help to materialize the sounds and help the child bring this action to a concrete level where he could discover it for himself and become familiar with it. Many drawings of objects well known to the child would be presented in the same way until the child could be said to have mastered the action of distinguishing the sounds in several words.

In the next stage the counters and the drawings would be gradually withdrawn. Now when the child heard the word, he would repeat the word and then attempt to name the sounds without the help of either counters or drawings. Once again, sufficient time must be taken to be sure that this step is mastered before the next one is introduced. The gradual withdrawal of the drawing and the counters is the first step in releasing the action from the concrete and placing it entirely on the plane of audible speech.

In the final step the child upon hearing the word would learn to perform the sound analysis mentally without pronouncing the word aloud to himself. Galperin (5) achieved this by showing the child how to whisper the word to himself and then finally just to say it to himself without producing any audible sound. When the child heard the word then, he would whisper it to himself and then he would whisper the individual sounds in order. At the conclusion of this recitation he would whisper the word again to himself. This whisper would gradually disappear until the naming of the word and of its component sounds would be performed mentally only. He could, of course, name the sounds in the words when he was asked to do so but the action would be well established mentally and would only be brought to the level of audible speech again when the occasion warranted it.

After much practice this ability would be generalized and the transfer to new words of any difficulty could be effected. With this ability the child in first-grade could learn to attach each sound in a word to its accepted letter counterpart. That is, he could learn the code and apply it. Once the code was learned the process of attaching groups of sounds to groups of letter symbols would follow rapidly.

This approach has worked for others and it may merit our consideration.

The Role of Language in the Development of Perceptual Activity.

The development of perception is inseparably associated with the development of thinking and language development facilitates immeasurably the development of both of them. Perceptual development is basic to abstract thinking and the development of abstract thinking in individuals is the highest aim to which we are committed as a profession. The goal may seem far away to the kindergarten teacher but the program and activities of the kindergarten nevertheless play a basic role in making possible future developments in thinking abilities. Once the child acquires sufficient language to communicate with the outside world and with his own inside world, the speed, accuracy and fineness of his perceptions develop rapidly. What then might the kindergarten program undertake in oral language work to ensure the greatest possible perceptual development?

A brief review of how the child acquires syntax will isolate a number of pertinent facts. Brown and Bellugi (1) reported that the young child selects the noun and verbs and less often the adjectives from the sentences spoken to him. These are the high-information words and are those which receive the heavier stress in adult intonational speech patterns. For example, from the sentence "Daddy is coming down the street" the young child selects "Daddy coming street" to reecho.

What he chooses to let go is what concerns us. The forms he omits are the grammmatical functions, the low-information words. These are the inflections, auxiliary verbs, articles, prepositions and conjunctions. These function words have meaning but it is meaning that accrues in context rather than in isolation. During the remaining pre-school years through imitation of the language patterns of his elders the young child gradually expands his own oral output and learns to include these function words in his communications. His achievements are so remarkable that he is credited often with the counterpart of an adult command of the structures of his language.

Is Use of Language Proof of Understanding? To assume that just because the child uses words and grammatical constructions acceptably, he has a commensurate understanding of them, is dangerous. Piaget (9) wrote more than thirty years ago about children's verbalism. He found that the child used grammatical forms before he could grasp the structure of meaning corresponding to them. In other words, use of language structure by a child is not necessarily a guarantee that he has the understanding some adults would credit to him.

The implication for kindergarten programs is clear. The years of pre-school training can profitably be used in a two-fold development of oral language. The first prong of the program would be a systematic language development program to ensure that each child was developing toward a mastery of the elements of the grammatical structures of English. This program would include a check on the function words such as prepositions, adverbs, and conjunctions with the inclusion of directed teaching where necessary. The second prong of the program would be interrelated with the first as it would ensure a continuing development of understanding in the use of the various grammatical forms.

My concern in this matter springs in part from the findings of my own research. In reading I found that even at the grade four level the children could answer correctly only slightly more than half of the multiple-choice questions built up from sentences containing connectives (10). From the understandings of child psychology it is not difficult to understand why children stumble at the meaning of "although," "however," and "thus" but the fact remains that the writings we expect them to read contain these relational words in abundance and yet we rarely give them directed help in the understanding of the words and the constructions in which they occur.

Liublinskaya (6) cited an investigation in which one group of pre-school children were given instructional activities in which they had opportunities through games to investigate the interrelationships of words such as "under" and "over." The game activities were always accompanied with opportunities for guided discussions led by the instructor. Many times pictures were used but no matter what the medium was the children had the opportunity to investigate the relationships ascribed to function words on both the concrete level and also through speech. A control group had no such opportunities and they lagged behind the experimental group in which there were substantial changes in the children's speech.

Although no one can predict for a kindergarten teacher what the particular language needs of her group will be, a few working principles may be helpful. First, appraise the language needs of your group from the standpoint of their understanding of grammatical constructions. Then list the areas of weaknesses and isolate those needs which could be included in your total program. Secondly, develop each of the language needs systematically.

For example, suppose the need was a greater understanding of the conjunction "when." Devise practical activities that will confront the children with the meaning associated with the use of "when." One could say to Brenda, "When you bring me a book I will give you a pencil." Then one could continue the activity by saying, "When Brenda gives Jim the pencil, Jim will bring it to me," etc. Before long the children will be participating more fully in the activity and through both activity and discussion they can develop their idea of what "when" means.

This particular lesson should be repeated with this or other activities until the children through these direct experiences have a more exact understanding of the word. Then at desired intervals throughout the kindergarten year, checks on their understanding of this point should be made. In the meantime, there should be other lessons directed at the development of under-

standing of different conjunctions, prepositions, and other function words.

Finally, it is imperative that teachers understand and explain the purposes of the activities. The children may mimic sophisticated grammatical constructions but understanding of the constructions will develop far more rapidly and surely if the objects, actions, and events can be brought down to the action or concrete level. Then the children can participate in them to a greater degree and apply their competencies in speech to help them develop meaning for the structures they have learned to mimic so well.

Problems abound in such ventures but groups of kindergarten teachers working together can devise programs so children can perceive better and can have greater competency in oral language to help them do it.

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